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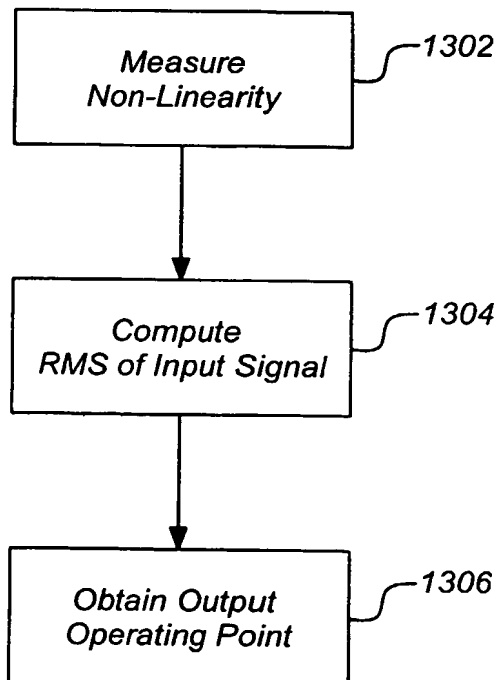
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[Continued on next page]

(54) Title: ESTIMATING THE OPERATING POINT ON A NONLINEAR TRAVELING WAVE TUBE AMPLIFIER



(57) Abstract: A method, apparatus, article of manufacture, and a memory structure provide the ability to determine an input operating point and an output operating point on a non-linear traveling wave tube amplifier (TWTA). The non-linearity of the TWTA is measured (1302). An input roots mean-square (RMS) value of an input signal used to measure the non-linearity of the TWTA is computed (1304). The RMS value identifies an input operating point of the measured non-linearity of the TWTA. Lastly, an output operating point is obtained (1306).

WO 2004/040406 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US03/33130

**A. CLASSIFICATION OF SUBJECT MATTER**IPC(7) : H03F 3/58  
US CL : 330/43, 136, 149

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 330/2,43, 136, 149; 315/3.5, 39.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,369,648 B1 (KIRKMAN) 09 April 2002 (09.04.2002), fig. 8 and col. 6, lines 1-50.	1-4,15-18,29-32
Y	US 6,177,836 B1 (YOUNG et al.) 23 January 2001 (23.06.2001), fig. 2.	1-4,15-18,29-32

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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**INTERNATIONAL SEARCH REPORT**

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**Continuation of B. FIELDS SEARCHED Item 3:**

**WEST**

search terms: TWT, TWTA, RMS, operating point